

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l10 same promoter	20	<u>L11</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	regulatory factor same (screen or assay or identify)	141	<u>L10</u> Attachment
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l8 same promoter	20	<u>L9</u> to paper
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l7 same reporter	29	<u>L8</u> # 9
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l2 same polynucleotide\$	72	<u>L7</u> FOAM
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l5 same polynucleotide\$	20	<u>L6</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l4 same (pool or library)	51	<u>L5</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l3 same reporter	125	<u>L4</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l2 same promoter	300	<u>L3</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	transcription factor same (screen or assay or identify)	1065	<u>L2</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	dna binding factor same (screen or assay or identify)	27	<u>L1</u>

**WEST****Help** **Logout** **Interrupt****Main Menu** **Search Form** **Posting Counts** **Show S Numbers** **Edit S Numbers** **Preferences****Search Results -**

Term	Documents
PROMOTER,DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	68072
PROMOTERS DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	36930
(10 SAME PROMOTER).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	20

**Database:**

US Patents Full-Text Database  
US Pre-Grant Publication Full-Text Database  
JPO Abstracts Database  
EPO Abstracts Database  
Derwent World Patents Index  
IBM Technical Disclosure Bulletins

**Refine Search:**

110 same promoter

**Clear****Search History****Today's Date:** 12/2/2001

**WEST****Help** **Logout** **Interrupt****Main Menu** **Search Form** **Posting Counts** **Show S Numbers** **Edit S Numbers** **Preferences**Attachment  
to paper #9  
Format**Search Results -**

<b>Term</b>	<b>Documents</b>
(1 AND 5).USPT,PGPB,JPAB,EPAB,DWPI,TDBD	1

US Patents Full-Text Database  
 US Pre-Grant Publication Full-Text Database  
 JPO Abstracts Database  
 EPO Abstracts Database  
 Derwent World Patents Index  
 IBM Technical Disclosure Bulletins

**Database:**

11 and 15

**Clear****Search History****Today's Date:** 12/2/2001

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	11 and 15	1	<u>L7</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	15 same taxus	2	<u>L6</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	limonene	5885	<u>L5</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	12 same reporter	16	<u>L4</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	12 same (pool or library)	8	<u>L3</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	11 same promoter\$	62	<u>L2</u>
(isolate or identif\$) near2 USPT,PGPB,JPAB,EPAB,DWPI,TDBD (transcription factor or regulatory factor)		236	<u>L1</u>

### Status: Path 1 of [Dialog Information Services via,Modem]  
### Status: Initializing TCP/IP using (UseTelnetProto 1 ServiceID pto-dialog)  
Trying 3106900061...Open

DIALOG INFORMATION SERVICES  
PLEASE LOGON:  
\*\*\*\*\* HHHHHHHH SSSSSSS?  
### Status: Signing onto Dialog  
\*\*\*\*\*  
ENTER PASSWORD:  
\*\*\*\*\* HHHHHHHH SSSSSSS? \*\*\*\*\*  
Welcome to DIALOG  
### Status: Connected

Dialog level 01.10.01D

Last logoff: 02dec01 11:34:47  
Logon file001 02dec01 18:51:27  
KWIC is set to 50.  
HIGHLIGHT set on as \*\*  
\*\*\*  
\*\*\*\*

File 1:ERIC 1966-2001/Nov 02  
(c) format only 2001 The Dialog Corporation

Set	Items	Description
Cost is in DialUnits	---	-----
?b 434, 5, 155	02dec01 18:51:34 User259980 Session D168.1	
	\$0.25 0.072 DialUnits File1	
	\$0.25 Estimated cost File1	
	\$0.25 Estimated cost this search	
	\$0.25 Estimated total session cost 0.072 DialUnits	

SYSTEM:OS - DIALOG OneSearch  
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 1998 Inst for Sci Info  
File 5:Biosis Previews(R) 1969-2001/Nov W4  
(c) 2001 BIOSIS  
File 155:MEDLINE(R) 1966-2001/Dec W4

Set	Items	Description
?s isolate(s)transcription factor	---	-----
	76895 ISOLATE	
	10334 TRANSCRIPTION FACTOR	
	S1 0 ISOLATE(S)TRANSCRIPTION FACTOR	
?s isolate(s)transcription	---	-----
	76895 ISOLATE	
	375036 TRANSCRIPTION	
	S2 2184 ISOLATE(S)TRANSCRIPTION	
?s s2 and promoter?	---	-----
	2184 S2	
	194325 PROMOTER?	
	S3 561 S2 AND PROMOTER?	
?s s3 and reporter	---	-----
	561 S3	
	47407 REPORTER	
	S4 85 S3 AND REPORTER	
?s s4 and (pool or library)	---	-----
	85 S4	
	81811 POOL	
	79181 LIBRARY	
	S5 30 S4 AND (POOL OR LIBRARY)	
?rd	---	completed examining records

86 17 RD (unique items)  
?t/3/all

6/3/1 (Item 1 from file: 5)  
DIALOG(R)FILE 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

13348601 BIOSIS NO.: 200100555750  
Characterization of human and mouse angiopoietin-like factor CDT6  
\*promoter\*.  
AUTHOR: Liu Janice J; Wilson Steven E(a)  
AUTHOR ADDRESS: (a)Department of Ophthalmology, University of Washington  
School of Medicine, Seattle, WA, 98195-6485\*USA  
JOURNAL: IOVS 42 (12):p2776-2783 November, 2001  
MEDIUM: print  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

6/3/2 (Item 2 from file: 5)  
DIALOG(R)FILE 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

13104511 BIOSIS NO.: 200100311660  
Cloning of a coproporphyrinogen oxidase \*promoter\* regulatory element  
binding protein.  
AUTHOR: Takahashi S(a); Furuyama K(a); Kobayashi A(a); Taketani S; Harigae  
H(a); Yamamoto M; Igarashi K(a); Yokoyama H(a); Ishikawa I(a); Sasaki O  
(a); Kameoka J(a); Miyamura K(a); Meguro K(a); Hayashi N(a); Sasaki T(a)  
AUTHOR ADDRESS: (a)Tohoku Univ. Sch. Med., Sendai\*\*Japan  
JOURNAL: Blood 96 (11 Part 1):p285a November 16, 2000  
MEDIUM: print  
CONFERENCE/MEETING: 42nd Annual Meeting of the American Society of  
Hematology San Francisco, California, USA December 01-05, 2000  
SPONSOR: American Society of Hematology  
ISSN: 0006-4971  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

6/3/3 (Item 3 from file: 5)  
DIALOG(R)FILE 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

13038759 BIOSIS NO.: 200100245908  
The mouse lens fiber-cell intrinsic membrane protein MPL9 gene (Lim2) and  
granule membrane protein GM-17 gene (Nkg7): Isolation and sequence  
analysis of two neighboring genes.  
AUTHOR: Zhou Ling; Li Xiaolian; Church Robert L(a)  
AUTHOR ADDRESS: (a)Emory Eye Center, 1365B Clifton Rd, NE, Room B5601,  
Atlanta, GA, 30322; rlcchurch@emory.edu\*USA  
JOURNAL: Molecular Vision 7 (12 Cited April 23, 2001):p79-88 April 2, 2001  
MEDIUM: online  
ISSN: 1090-0535  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

6/3/4 (Item 4 from file: 5)  
DIALOG(R)FILE 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

13019962 BIOSIS NO.: 200100226111  
Cloning of human acetyl-CoA carboxylase beta \*promoter\* and its regulation  
by muscle regulatory factors.  
AUTHOR: Lee Jae-Jung; Moon Young-Ah; Ha Joo-Hun; Yoon Do-Jun; Ahn Yong-Ho;

Kim Kyung-Sup(a)  
AUTHOR ADDRESS: (a)Dept. of Biochemistry and Molecular Biology, Institute of Genetic Science, Yonsei University College of Medicine, 134 Shinchon-dong Seodaemun-gu, Seoul, 120-752: kyungs59@ymc.yonsei.ac.kr  
\*\*South Korea  
JOURNAL: Journal of Biological Chemistry 276 (4):p2576-2585 January 26, 2001  
MEDIUM: print  
ISSN: 0021-9258  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

6/3/5 (Item 5 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

12400619 BIOSIS NO.: 200000154121  
Active intracellular domain of notch enhances transcriptional activation of CCAAT/enhancer binding protein beta on a rat pregnancy-specific glycoprotein gene.  
AUTHOR: Chen Hungwen(a); Chong Yichuen; Liu Chia-Lin  
AUTHOR ADDRESS: (a)Institute of Biological Chemistry, Academia Sinica, Nankang, Taipei, 115\*Taiwan  
JOURNAL: Biochemistry. 39 (7):p1675-1682 Feb. 22, 2000  
ISSN: 0066-2960  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

6/3/6 (Item 6 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

11709014 BIOSIS NO.: 199800490745  
Characterization of a nuclear deformed epidermal autoregulatory factor-1 (DEAF-1)-related (NUDR) transcriptional regulator protein.  
AUTHOR: Huggenvik Jodi I(a); Michelson Rhett J; Collard Michael W; Ziembala Amy J; Gurley Paul; Mowen Kerri A  
AUTHOR ADDRESS: (a)Dep. Physiol., South. Ill. Univ. Sch. Med., Carbondale, IL 62901-6523\*USA  
JOURNAL: Molecular Endocrinology 12 (10):p1619-1639 Oct. 1998, 1998  
ISSN: 0888-8809  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

6/3/7 (Item 7 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

11266321 BIOSIS NO.: 199800047653  
Molecular cloning, sequencing and functional study of the \*promoter\* region of the human alpha2C4-adrenergic receptor gene.  
AUTHOR: Schaak Stephanie; Devedjian Jean-Christophe; Cayla Cecile; Sender Yolande; Paris Herve(a)  
AUTHOR ADDRESS: (a)Institut Natl. de la Sante et de la Recherche Medicale U.317, Institut Louis Bugnard, CHU Rangueil\*France  
JOURNAL: Biochemical Journal 328 (2):p431-438 Dec. 1, 1997  
ISSN: 0264-6021  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

6/3/8 (Item 8 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

10757358 BIOSIS NO.: 199799378503  
The alternative sigma factor sigma-28 of *Legionella pneumophila* restores flagellation and motility to an *Escherichia coli* *flhA* mutant.  
AUTHOR: Heuner Klaus; Hacker Joerg; Brand Bettina C(a)  
AUTHOR ADDRESS: (a)Inst. Mol. Infektionsbiol., Univ. Wuerzburg,  
Roentgenring 11, D-97070 Wuerzburg\*Germany  
JOURNAL: Journal of Bacteriology 179 (1):p17-23 1997  
ISSN: 0021-9193  
RECORD TYPE: Abstract  
LANGUAGE: English

6/3/9 (Item 9 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

10645253 BIOSIS NO.: 199699266398  
Prolactin-like protein-C variant: Complementary deoxyribonucleic acid, unique six exon gene structure, and trophoblast cell-specific expression.  
AUTHOR: Dai Guoli; Liu Bang; Szpirer Claude; Levan Goran; Kwok Simon C M;  
Soares Michael J(a)  
AUTHOR ADDRESS: (a)Dep. Physiol., Univ. Kansas Med. Cent., Kansas City, KS  
66160-7401\*\*USA  
JOURNAL: Endocrinology 137 (11):p5009-5019 1996  
ISSN: 0013-7227  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

6/3/10 (Item 10 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

10433987 BIOSIS NO.: 199699055132  
Msn2p, a zinc finger DNA-binding protein, is the transcriptional activator of the multistress response in *Saccharomyces cerevisiae*.  
AUTHOR: Schmitt Anthony F; McEntee Kevin(a)  
AUTHOR ADDRESS: (a)Dep. Biol. Chem., Univ. Calif. Sch. Med., Univ. Calif.,  
900 Veterans Ave., Los Angeles, CA 90024\*USA  
JOURNAL: Proceedings of the National Academy of Sciences of the United  
States of America 93 (12):p5777-5782 1996  
ISSN: 0027-8424  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

6/3/11 (Item 11 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

10412637 BIOSIS NO.: 199699033782  
GRIP1, a novel mouse protein that serves as a transcriptional coactivator in yeast for the hormone binding domains of steroid receptors.  
AUTHOR: Hong Heng; Kohli Kulwant; Trivedi Alpa; Johnson Deborah L; Stallcup  
Michael R(a)  
AUTHOR ADDRESS: (a)Dep. Pathol., University Southern California, Los  
Angeles, CA 90033\*\*USA  
JOURNAL: Proceedings of the National Academy of Sciences of the United  
States of America 93 (10):p4948-4952 1996  
ISSN: 0027-8424  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

6/3/12 (Item 12 from file: 5)

DIALOG(R)File 5:BIOSIS Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

09579682 BIOSIS NO.: 199598034600

Characterization of a Corticotropin-Releasing Hormone-Responsive Element in the Rat Proopiomelanocortin Gene "Promoter" and Molecular Cloning of Its Binding Protein.

AUTHOR: Jin Wei Dong; Boutilier Anne-Laurence; Gluckman Marc J; Salton Stephen R J; Loeffler Jean-Philippe; Roberts James L(a)

AUTHOR ADDRESS: (a)Fishberg Res. Cent. Neurobiol., Mt. Sinai Sch. Med., One Gustave Levy Place, New York, NY 10029-\*\*USA

JOURNAL: Molecular Endocrinology 8 (10):p1377-1388 1994

ISSN: 0888-8809

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

6/3/13 (Item 13 from file: 5)  
DIALOG(R)File 5:BIOSIS Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

09261049 BIOSIS NO.: 199497269419

Activation of the glycoprotein hormone alpha-subunit "promoter" by a LIM-homeodomain transcription factor.

AUTHOR: Roberson Mark S; Schoderbek William E; Tremml Gabi; Maurer Richard A(a)

AUTHOR ADDRESS: (a)Dep. Cell Biol. Anat., L215 Oregon Health Sci. Univ., 3181 SW Sam Jackson Park Rd., Portland, OR\*\*USA

JOURNAL: Molecular and Cellular Biology 14 (5):p2985-2993 1994

ISSN: 0270-7306

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

6/3/14 (Item 14 from file: 5)  
DIALOG(R)File 5:BIOSIS Previews(R)  
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07996584 BIOSIS NO.: 000093052257

GENETIC METHOD TO IDENTIFY REGULONS CONTROLLED BY NONESSENTIAL ELEMENTS ISOLATION OF A GENE DEPENDENT ON ALTERNATE TRANSCRIPTION FACTOR SIGMA-B OF BACILLUS-SUBTILIS

AUTHOR: BOYLAN S A; THOMAS M D; PRICE C W

AUTHOR ADDRESS: DEP. FOOD SCI. AND TECHNOL., UNIV. CALIF., DAVIS, CALIF. 95616.

JOURNAL: J BACTERIOL 173 (24). 1991. 7856-7866. 1991

FULL JOURNAL NAME: Journal of Bacteriology

CODEN: JOBA

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

6/3/15 (Item 15 from file: 5)  
DIALOG(R)File 5:BIOSIS Previews(R)  
(c) 2001 BIOSIS. All rts. reserv.

07864870 BIOSIS NO.: 000092124236

ACTIVATION OF GLOBIN GENE EXPRESSION BY COMPLEMENTARY DNAs FROM INDUCED K562 CELLS EVIDENCE FOR INVOLVEMENT OF FERRITIN IN GLOBIN GENE EXPRESSION

AUTHOR: WU Y; NOGUCHI C T

AUTHOR ADDRESS: NIH, BLDG. 10, RM. 9N307, BETHESDA, MD. 20892.

JOURNAL: J BIOL CHEM 266 (26). 1991. 17566-17572. 1991

FULL JOURNAL NAME: Journal of Biological Chemistry

CODEN: JBCHA

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

6/3/16 (Item 1 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

08771620 95318065 PMID: 7797489

Expression screening reveals an orphan receptor chick ovalbumin upstream \*promoter\* transcription factor I as a regulator of neurite/substrate-cell contacts and cell aggregation.

Connor H; Nornes H; Neuman T

Department of Anatomy and Neurobiology, Colorado State University, Fort Collins 80523, USA.

Journal of biological chemistry (UNITED STATES) Jun 23 1995, 270 (25) p15066-70, ISSN 0021-9258 Journal Code: HIV

Languages: ENGLISH

Document type: Journal Article

Record type: Completed

6/3/17 (Item 2 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

07168611 91373383 PMID: 1840594

Activation of globin gene expression by cDNAs from induced K562 cells. Evidence for involvement of ferritin in globin gene expression.

Wu YJ; Noguchi CT

Laboratory of Chemical Biology, National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, Bethesda, Maryland 20892.

Journal of biological chemistry (UNITED STATES) Sep 15 1991, 266 (26) p17566-72, ISSN 0021-9258 Journal Code: HIV

Languages: ENGLISH

Document type: Journal Article

Record type: Completed

?ds

Set	Items	Description
S1	0	ISOLATE(S) TRANSCRIPTION FACTOR
S2	2184	ISOLATE(S) TRANSCRIPTION
S3	561	S2 AND PROMOTER?
S4	85	S3 AND REPORTER
S5	30	S4 AND (POOL OR LIBRARY)
S6	17	RD (unique items)

?s terpenoid

S7 3429 TERPENOID

?s s7 and pathway

3429 S7

300666 PATHWAY

S8 161 S7 AND PATHWAY

?s s8 and (transcription or regulatory or binding)

161 S8

375036 TRANSCRIPTION

214241 REGULATORY

1204726 BINDING

S9 13 S8 AND (TRANSCRIPTION OR REGULATORY OR BINDING)

?rd

...completed examining records

S10 9 RD (unique items)

?t/9/all

10/9/1 (Item 1 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)

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12895958 BIOSIS NO.: 200100103107

The jasmonate-inducible AP2/ERF-domain \*transcription\* factor ORCA3 activates gene expression via interaction with a jasmonate-responsive promoter element.

AUTHOR: van der Fits Leslie; Memelink Johan(a)

AUTHOR ADDRESS: (a)Clusius Laboratory, Institute of Molecular Plant Sciences, Leiden University, Wassenaarseweg 64, 2333 AL, Leiden; memelink@rulbim.leidenuniv.nl\*\*Netherlands

JOURNAL: Plant Journal 25 (1):p43-53 January, 2001

MEDIUM: print

ISSN: 0960-7412  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

**ABSTRACT:** The AP2/ERF-domain "transcription" factor ORCA3 is a master regulator of primary and secondary metabolism in *Catharanthus roseus* (periwinkle). Here we demonstrate that ORCA3 specifically binds to and activates gene expression via a previously characterized jasmonate- and elicitor-responsive element (JERE) in the promoter of the "terpenoid" indole alkaloid biosynthetic gene Strictosidine synthase (Str). Functional characterization of different domains in the ORCA3 protein in yeast and plant cells revealed the presence of an N-terminal acidic activation domain and a serine-rich C-terminal domain with a negative "regulatory" function. *Orc3* mRNA accumulation was rapidly induced by the plant stress hormone methyljasmonate with biphasic kinetics. A precursor and an intermediate of the jasmonate biosynthetic "pathway" also induced *Orc3* gene expression, further substantiating the role for ORCA3 in jasmonate signaling. The protein synthesis inhibitor cycloheximide did not inhibit jasmonate-responsive expression of *Orc3*, nor of its target genes Str and Tryptophan decarboxylase (Tdc). In conclusion, ORCA3 regulates jasmonate-responsive expression of the Str gene via direct interaction with the JERE. The activating activities of ORCA proteins do not seem to depend on jasmonate-induced de novo protein synthesis, but presumably occur via modification of pre-existing ORCA protein.

REGISTRY NUMBERS: 69669-72-3: STRICTOSIDINE SYNTHASE; 9042-64-2: TRYPTOPHAN DECARBOXYLASE

DESCRIPTORS:

MAJOR CONCEPTS: Molecular Genetics (Biochemistry and Molecular Biophysics); Chemical Coordination and Homeostasis  
BIOSYSTEMATIC NAMES: Apocynaceae--Dicotyledones, Angiospermae, Spermatophyta, Plantae  
ORGANISMS: *Catharanthus roseus* (periwinkle) (Apocynaceae)  
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperms; Dicots; Plants; Spermatophytes; Vascular Plants  
CHEMICALS & BIOCHEMICALS: ORCA3--AP2/ERF-domain, "transcription" factor; jasmonate--gene expression, plant growth regulator; strictosidine synthase; tryptophan decarboxylase  
GENE NAME: *Catharanthus roseus* Str gene (Apocynaceae)--target gene; *Catharanthus roseus* Tdc gene (Apocynaceae)--target gene

CONCEPT CODES:

12002 Physiology, General and Miscellaneous-General  
03502 Genetics and Cytogenetics-General  
03504 Genetics and Cytogenetics-Plant  
10802 Enzymes-General and Comparative Studies; Coenzymes  
51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances  
51522 Plant Physiology, Biochemistry and Biophysics-Chemical Constituents  
51526 Plant Physiology, Biochemistry and Biophysics-General and Miscellaneous

BIOSYSTEMATIC CODES:  
25580 Apocynaceae

10/9/2 (Item 2 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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12895257 BIOSIS NO.: 200100102406  
A *Catharanthus roseus* BPF-1 homologue interacts with an elicitor-responsive region of the secondary metabolite biosynthetic gene Str and is induced by elicitor via a JA-independent signal transduction "pathway".  
AUTHOR: van der Feltz Leslie; Zhang Hui; Menke Frank L H; Deneka Magdalena; Memelink Johan(a)  
AUTHOR ADDRESS: (a)Institute of Molecular Plant Sciences, Clusius Laboratory, Leiden University, Wassenaarseweg 64, 2333 AL, Leiden; memelink@rulbim.Leidenuniv.nl\*\*Netherlands  
JOURNAL: Plant Molecular Biology 44 (5):p675-685 November, 2000  
MEDIUM: print

ISSN: 0167-4412  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

**ABSTRACT:** Plants respond to pathogen attack by induction of various defence responses, including the biosynthesis of protective secondary metabolites. In *Catharanthus roseus*, the elicitor-induced expression of the "terpenoid" indole alkaloid biosynthetic gene Strictosidine synthase (Str) is mediated via the plant stress hormone jasmonate. In the promoters of several defence-related genes, cis-acting elements have been identified that are important for transcriptional regulation upon stress signals. Here we show that an upstream region in the Str promoter confers responsiveness to partially purified yeast elicitor and jasmonate. Yeast one-hybrid screening with this element as a bait identified a MYB-like protein, which shows high homology to parsley box P-\*binding\* factor-1 (PcBPF-1). In vitro analyses showed that the Str promoter fragment contained a novel "binding" site for BPF-1-like proteins with higher \*binding\* affinity than the previously described box P. CrBPF-1 mRNA accumulated rapidly in elicitor-treated *C. roseus* suspension cells, whereas no induction was observed with jasmonate. Inhibitor studies indicated that CrBPF-1 plays a role in an elicitor-responsive but jasmonate-independent signal transduction "pathway", acting downstream of protein phosphorylation and calcium influx.

**DESCRIPTORS:**

MAJOR CONCEPTS: Enzymology (Biochemistry and Molecular Biophysics); Molecular Genetics (Biochemistry and Molecular Biophysics); Infection  
BIOSYSTEMATIC NAMES: Apocynaceae--Dicotyledones, Angiospermae, Spermatophyta, Plantae  
ORGANISMS: *Catharanthus roseus* (Apocynaceae)  
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperms; Dicots; Plants; Spermatophytes; Vascular Plants  
CHEMICALS & BIOCHEMICALS: CrBPF-1 (*Catharanthus roseus* box P-\*binding\* factor-1); defense-related genes; jasmonate--mediation, stress hormone; parsley box P-\*binding\* factor-1 (PcBPF-1)--protein; protective secondary metabolites--biosynthesis; purified yeast elicitor

MOLECULAR SEQUENCE DATABASE NUMBER: AJ251686--DDBJ, EMBL, GenBank, nucleotide sequence

GENE NAME: *Catharanthus roseus* Str gene (*Catharanthus roseus* Strictosidine synthase gene) (Apocynaceae)--biosynthetic, expression, promoter

METHODS & EQUIPMENT: in vitro analysis--analytical method; yeast one-hybrid screening--identification method, screening method

MISCELLANEOUS TERMS: signal transduction "pathway"--jasmonate-independent; stress signals; transcriptional regulation

**CONCEPT CODES:**

10802 Enzymes-General and Comparative Studies; Coenzymes  
03502 Genetics and Cytogenetics-General  
03504 Genetics and Cytogenetics-Plant  
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines  
10064 Biochemical Studies-Proteins, Peptides and Amino Acids  
51518 Plant Physiology, Biochemistry and Biophysics-Enzymes  
BIOSYSTEMATIC CODES:  
25580 Apocynaceae

10/9/3 (Item 3 from file: 5)  
DIALOG(R)File S:Biosis Previews(R)  
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12867760 BIOSIS NO.: 200100074909  
Cloning and expression of cDNAs encoding two enzymes of the MEP \*pathway\* in *Catharanthus roseus*.

AUTHOR: Veau Bertrand; Courtous Martine; Oudin Audrey; Chenieux Jean-Claude ; Rideau Marc(a); Clastre Marc  
AUTHOR ADDRESS: (a) Laboratoire de Biologie Moleculaire et Biochimie vegetale, Faculte de Pharmacie, Universite de Tours, 31 avenue Monge, EA2106, 37200, Tours: rideau@univ-tours.fr\*\*France

JOURNAL: Biochimica et Biophysica Acta 1517 (1):p159-163 15 December, 2000  
MEDIUM: print  
ISSN: 0006-3002  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
SUMMARY LANGUAGE: English

ABSTRACT: Two periwinkle cDNAs (crdxr and crmecs) encoding enzymes of the non-mevalonate "terpenoid" pathway were characterized using reverse transcription-PCR strategy based on the design of degenerated oligonucleotides. The deduced amino acid sequence of crdxr is homologue to 1-deoxy-D-xylulose 5-phosphate reductoisomerase. Crmecs represents the first plant cDNA encoding a protein similar to the 2C-methyl-D-erythritol 2,4-cyclodiphosphate synthase from *Escherichia coli*. Expression of crdxr and crmecs genes was up-regulated in periwinkle cells producing monoterpenoid indole alkaloids. Involvement of the 2C-methyl-D-erythritol 4-phosphate pathway in alkaloid biosynthesis is discussed.

REGISTRY NUMBERS: 210756-42-6: 1-DEOXY-D-XYLULOSE 5-PHOSPHATE  
REDUCTOISOMERASE: 287480-92-6: 2C-METHYL-D-ERYTHRITOL  
2,4-CYCLODIPHOSPHATE SYNTHASE

DESCRIPTORS:

MAJOR CONCEPTS: Enzymology (Biochemistry and Molecular Biophysics); Molecular Genetics (Biochemistry and Molecular Biophysics); Methods and Techniques

BIOSYSTEMATIC NAMES: Apocynaceae--Dicotyledones, Angiospermae,

Spermatophyta, Plantae

ORGANISMS: *Catharanthus roseus* (periwinkle) (Apocynaceae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperms; Dicots; Plants;

Spermatophytes; Vascular Plants

CHEMICALS & BIOCHEMICALS: 1-deoxy-D-xylulose 5-phosphate

reductoisomerase; 2C-methyl-D-erythritol 2,4-cyclodiphosphate synthase

MOLECULAR SEQUENCE DATABASE NUMBER: AF250235--GenBank, amino acid sequence, nucleotide sequence: AF250236--GenBank, amino acid sequence, nucleotide sequence

GENE NAME: *Catharanthus roseus* crdxr gene [Apocynaceae]--cloning, expression; *Catharanthus roseus* crmecs gene (Apocynaceae)--cloning, expression

METHODS & EQUIPMENT: reverse transcriptase-polymerase chain reaction--genetic method, polymerase chain reaction

MISCELLANEOUS TERMS: non-mevalonate "terpenoid" pathway

CONCEPT CODES:

10802 Enzymes-General and Comparative Studies; Coenzymes

03502 Genetics and Cytogenetics-General

03504 Genetics and Cytogenetics-Plant

10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines

10064 Biochemical Studies-Proteins, Peptides and Amino Acids

51518 Plant Physiology, Biochemistry and Biophysics-Enzymes

BIOSYSTEMATIC CODES:

25580 Apocynaceae

10/9/4 (Item 4 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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12322210 BIOSIS NO.: 200000075712

Identification of UV-B light-responsive regions in the promoter of the tryptophan decarboxylase gene from *Catharanthus roseus*.

AUTHOR: Ouwerkerk Pieter B F; Hallard Didier; Verpoorte Rob; Memelink Johan  
(a)

AUTHOR ADDRESS: (a)Clusius Laboratory, Institute of Molecular Plant Sciences, Leiden University, Wassenaarseweg 64, 2333 AL, Leiden\*\*  
Netherlands

JOURNAL: Plant Molecular Biology 41 (4):p491-503 Nov., 1999

ISSN: 0167-4412

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

**ABSTRACT:** The tryptophan decarboxylase (Tdc) gene encodes a key enzyme in the biosynthesis of \*terpenoid\* indole alkaloids (TIAs) in *Catharanthus roseus*. TIAs absorb ultraviolet light (UV) and putative functions in plants include a role as UV protectants. In support of this possible function we demonstrate here that UV light induces accumulation of several TIAs as well as expression of the Tdc gene in *C. roseus*. In addition, in tobacco a Tdc-gusA construct was found to be specifically induced by UV-B light. Lack of induction by UV-A or other wavelengths of light indicate that Tdc expression is regulated by a specific UV-B receptor and corresponding signal transduction "pathway". To identify UV-responsive Tdc promoter elements, a loss-of-function analysis was performed, in which deletion derivatives were fused to the gusA reporter gene and analysed in transgenic tobacco plants. Truncation of the Tdc promoter from -1818 (relative to the start of "transcription") to -160 reduced expression levels two-fold without affecting the qualitative UV response. Deletion to -37 further reduced expression levels five-fold, but the DELTA37 promoter also remained UV-responsive. Subsequently, the -160 to -37 region was further studied by gain-of-function experiments, in which the transcriptional activities of tetramerized subfragments fused to truncated promoters were analysed. Combination of the data identified several functional regions in the -160 to +198 promoter. The -160 to -99 region acts as the main transcriptional enhancer. UV-responsive elements appeared to be redundant in the -160 Tdc promoter and to reside between -99 and -37 and between -37 and +198.

DESCRIPTORS:

MAJOR CONCEPTS: Enzymology (Biochemistry and Molecular Biophysics); Molecular Genetics (Biochemistry and Molecular Biophysics); Radiation Biology  
BIOSYSTEMATIC NAMES: Apocynaceae--Dicotyledones, Angiospermae, Spermatophyta, Plantae  
ORGANISMS: *Catharanthus roseus* (Apocynaceae)  
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperms; Dicots; Plants; Spermatophytes; Vascular Plants  
CHEMICALS & BIOCHEMICALS: \*terpenoid\* indole alkaloids; *Catharanthus roseus* Tdc gene (Apocynaceae)--tryptophan decarboxylase  
MOLECULAR SEQUENCE DATABASE NUMBER: X67662--DDBJ, EMBL, GenBank, nucleotide sequence  
MISCELLANEOUS TERMS: UV-B light--responsive regions; transcriptional enhancement  
CONCEPT CODES:

03504 Genetics and Cytogenetics-Plant  
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines  
10506 Biophysics-Molecular Properties and Macromolecules  
10604 External Effects-Light and Darkness  
51516 Plant Physiology, Biochemistry and Biophysics-Light and Radiation Effects  
51518 Plant Physiology, Biochemistry and Biophysics-Enzymes

BIOSYSTEMATIC CODES:  
25580 Apocynaceae

10/9/5 (Item 5 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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11914730 BIOSIS NO.: 199900160839  
Evaluation of the *Gossypium* gene pool for foliar \*terpenoid\* aldehydes.  
AUTHOR: Khan M Altaf; Stewart J M(a); Murphy J B  
AUTHOR ADDRESS: (a)Agron. Dep., Univ. Arkansas, Fayetteville, AR 72701\*\*USA  
JOURNAL: Crop Science 39 (1):p253-258 Jan.-Feb., 1999  
ISSN: 0011-183X  
DOCUMENT TYPE: Article  
RECORD TYPE: Abstract  
LANGUAGE: English

**ABSTRACT:** \*Terpenoid\* aldehydes (TAs) accumulate in the lysigenous glands of *Gossypium* L. (cotton genus) and related genera and are toxic to many insect pests. Knowledge of the diversity of TAs available in the

Gossypium germplasm pool could be useful in developing cultivars with enhanced expression of specific compounds to improve hostplant resistance (HPR). Qualitative and quantitative foliar analyses for seven TAs were performed by means of high performance liquid chromatography (HPLC) on *Thespesia thespesioides* (Brown ex Benth.) Fryxell and on 40 Gossypium genotypes comprising 30 species. *Gossypium mustelinum* Miers ex Watt had the highest leaf concentration of the heliododes H1 and H4 and total TAs, while heliocides H2 and H3, and hemigossypolone were highest in *G. capititis-viridis* Mauer, *G. lobatum* Gentry, and *G. nobile* Fryxell, Craven & Stewart, respectively. Gossypol was highest in *T. thespesioides* and an accession of *G. laxum* Phillips, although the former contained 60% more than the latter. *Gossypium raimondii* Ulbrich contained principally the unique TA, raimondial. Gossypol was the principal foliar TA in most of the D genome species, whereas, species in the B, C, F, G, and K genomic groups had very low concentrations of foliar gossypol compared with other TAs. In the AD genome, with minor exceptions, all six TAs occurred. Three distinct TA patterns were observed among seven *G. laxum* accessions. The diversity in biosynthesis and accumulation of TAs among Gossypium species should provide useful germplasm for modifying the TA quality and quantity of cotton. Resource material is also identified to study the metabolic pathways and "regulatory" mechanisms controlling the synthesis of these compounds.

DESCRIPTORS:

MAJOR CONCEPTS: Agronomy (Agriculture); Economic Entomology; Metabolism; Molecular Genetics (Biochemistry and Molecular Biophysics); Pest Assessment Control and Management; Toxicology  
BIOSYSTEMATIC NAMES: Malvaceae--Dicotyledones, Angiospermae, Spermatophyta, Plantae  
ORGANISMS: *Gossypium capititis viridis* (Malvaceae); *Gossypium lobatum* (Malvaceae); *Gossypium nobile* (Malvaceae); *Gossypium raimondii* (Malvaceae); *Gossypium* spp. (Malvaceae)--cotton species, crop  
ORGANISMS: PARTS ETC: leaf--chemistry; lysigenous gland  
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Angiosperme; Dicots; Plants; Spermatophytes; Vascular Plants  
CHEMICALS BIOCHEMICALS: \*terpenoid\* aldehydes--biosynthesis, insect toxicity, defense chemical  
MISCELLANEOUS TERMS: cultivar improvement; gene pool; metabolic pathway; plant breeding

CONCEPT CODES:

52502 Agronomy-General, Miscellaneous and Mixed Crops  
03504 Genetics and Cytogenetics-Plant  
13002 Metabolism-General Metabolism; Metabolic Pathways  
22501 Toxicology-General; Methods and Experimental  
51519 Plant Physiology, Biochemistry and Biophysics-Metabolism  
60014 Economic Entomology-Biological Control  
BIOSYSTEMATIC CODES:  
26330 Malvaceae

10/9/6 (Item 6 from file: 5)  
DIALOG(R)File: 5-Biosis Previews(R)  
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11615683 BIOSIS NO.: 199800397472  
Some caveats for bioengineering \*terpenoid\* metabolism in plants.  
AUTHOR: McCaskill David; Croteau Rodney  
AUTHOR ADDRESS: Inst. Biol. Chem., Washington State Univ., Pullman, WA 99164-6340\*\*USA  
JOURNAL: Trends in Biotechnology 16 (8):p349-355 Aug., 1998  
ISSN: 0167-7799  
DOCUMENT TYPE: Literature Review  
RECORD TYPE: Abstract  
LANGUAGE: English

ABSTRACT: The engineering of \*terpenoid\* formation in plants although highly appealing from a biotechnological viewpoint, is particularly challenging because of the myriad of terpenoids produced from a single intermediate (isopentenyl diphosphate) and the complex organization and subtle "regulatory" features of the biosynthetic pathways. This article surveys many of the biochemical issues that must be appreciated before

attempting to develop rational strategies for the bioengineering of \*terpenoid\* biosynthesis.

REGISTRY NUMBERS: 350-71-4: ISOPENTENYL DIPHOSPHATE

DESCRIPTORS:

MAJOR CONCEPTS: Metabolism

BIOSYSTEMATIC NAMES: Plantae

ORGANISMS: plants (Plantae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Plants

CHEMICALS & BIOCHEMICALS: isopentenyl diphosphate; \*terpenoid\*--  
bioengineered, metabolism

MISCELLANEOUS TERMS: biosynthetic \*pathway\*; biotechnology

CONCEPT CODES:

51519 Plant Physiology, Biochemistry and Biophysics-Metabolism

10060 Biochemical Studies-General

10506 Biophysics-Molecular Properties and Macromolecules

13002 Metabolism-General Metabolism; Metabolic Pathways

51522 Plant Physiology, Biochemistry and Biophysics-Chemical  
Constituents

51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and  
Methods

BIOSYSTEMATIC CODES:

11000 Plantae-Unspecified

10/9/7 (Item 7 from file: 5)  
DIALOG(R)File 5:Biosis Previews(R)  
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09267143 BIOSIS NO.: 199497275513  
Entomological aspects of the redirection of \*terpenoid\* biosynthesis in elicitor-treated cultures of *Tabernaemontana divaricata*.

AUTHOR: Fulton Daniel C; Kroon Paul A; Threlfall David R(a)

AUTHOR ADDRESS: (a)Dep. Applied Biol., Univ. Hull, Hull HU6 7RX\*\*UK

JOURNAL: Phytochemistry (Oxford) 35 (5):p1183-1186 1994

ISSN: 0031-9422

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: The elicitor-mediated induction of pentacyclic triterpenoid phytalexin accumulation in cells of five-day-old suspension cultures of *Tabernaemontana divaricata* is accompanied by: a rapid and transient increase in HMG-CoA reductase (EC 1.1.1.34) activity; an increase in IPP isomerase (EC 5.3.3.2), prenyl transferase (EC 2.5.1.1) and squalene synthetase (EC 2.5.1.21) activity; a rapid inhibition of squalene 2,3-oxide:cytoartenol cyclase activity (EC 5.4.99.8), and a rapid and relatively transient appearance of squalene 2,3-oxide:amyrin cyclase (EC 5.4.99.-) activity. These findings are entirely consistent with an elicitor-induced redirection of the cytosolic-microsomal "pathway" of \*terpenoid\* biosynthesis away from phytosterol biosynthesis and towards pentacyclic triterpenoid phytalexin biosynthesis. The switch being mediated as a direct result of the rapid inhibition of squalene 2,3-oxide: cytoartenol cyclase activity just prior to the de novo synthesis of squalene 2,3-oxide: amyrin cyclase and the other enzymes on the post-squalene 2,3-oxide span of the pentacyclic triterpenoid phytalexin "pathway". The increased activities of the enzymes common to both pathways reflects the fact that the rate of accumulation of pentacyclic triterpenoid phytalexins in elicited cultures is more rapid than the rate of phytosterol biosynthesis in control cultures. The very rapid and transient increase in HMG-CoA reductase activity points to the microsomal form(s) of this enzyme having a key "regulatory" role in controlling the flux of carbon into the cytosolic-microsomal "pathway" of \*terpenoid\* biosynthesis.

REGISTRY NUMBERS: 9028-35-7: EC 1.1.1.34; 9032-79-5: PRENYL TRANSFERASE;  
9032-79-5: EC 2.5.1.1; 111-02-4: SQUALENE; 9074-90-2: CYCLASE

DESCRIPTORS:

MAJOR CONCEPTS: Biochemistry and Molecular Biophysics; Cell Biology;

Enzymology (Biochemistry and Molecular Biophysics); Metabolism

BIOSYSTEMATIC NAMES: Apocynaceae--Dicotyledones, Angiospermae,

Spermatophyta, Plantae  
ORGANISMS: *Tabernaemontana divaricata* (Apocynaceae)  
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): angiosperms; dicots; plants;  
spermatophytes; vascular plants  
CHEMICALS & BIOCHEMICALS: EC 1.1.1.34; PRENYL TRANSFERASE; EC 2.5.1.1;  
SQUEALENE; CYCLASE  
MISCELLANEOUS TERMS: CELL SUSPENSION; CYTOSOLIC-MICROSOMAL "PATHWAY";  
ENZYME ACTIVITY; HMG-COA REDUCTASE EC 1.1.1.34; IPP ISOMERASE EC  
5.3.3.2; PENTACYCLIC TRITERPENOID PHYTOALEXINS; PHYTOSTEROLS; PRENYL  
TRANSFERASE EC 2.5.1.1; SQUEALENE SYNTHETASE EC 5.4.99.8; SQUEALENE  
2,3-OXIDE; AMYRIN CYCLASE EC 5.4.9.9  
CONCEPT CODES:  
02504 Cytology and Cytochemistry-Plant  
10066 Biochemical Studies-Lipids  
10808 Enzymes-Physiological Studies  
13006 Metabolism-Lipids  
51518 Plant Physiology, Biochemistry and Biophysics-Enzymes  
51519 Plant Physiology, Biochemistry and Biophysics-Metabolism  
10064 Biochemical Studies-Proteins, Peptides and Amino Acids  
10067 Biochemical Studies-Sterols and Steroids  
BIOSYSTEMATIC CODES:  
25580 Apocynaceae

10/9/8 (Item 1 from file: 155)  
DIALOG(R)File 155:MEDLINE(R)

10205812 99320820 PMID: 10394897  
Nuclear factors GT-1 and 3AF1 interact with multiple sequences within the promoter of the Tdc gene from Madagascar periwinkle: GT-1 is involved in UV light-induced expression.

Ouwerkerk PB; Trimborn TO; Hillion F; Memelink J  
Institute of Molecular Plant Sciences, Leiden University, Clusius  
Laboratory, The Netherlands.

Molecular & general genetics (GERMANY) Jun 1999, 261 (4-5) p610-22,  
ISSN 0026-8925 Journal Code: NGP

Languages: ENGLISH

Document type: Journal Article

Record type: Completed

Subfile: INDEX MEDICUS

Plant secondary metabolites of the "terpenoid" indole alkaloid (TIA) class comprise several compounds with pharmaceutical applications. A key step in the TIA biosynthetic "pathway" is catalysed by the enzyme tryptophan decarboxylase (TDC), which channels the primary metabolite tryptophan into TIA metabolism. In *Catharanthus roseus* (Madagascar periwinkle), the Tdc gene is expressed throughout plant development. Moreover, Tdc gene expression is induced by external stress signals, such as fungal elicitor and UV light. In a previous study of Tdc promoter architecture in transgenic tobacco it was shown that the -538 to -112 region is a quantitative determinant for the expression level in different plant organs. Within this sequence one particular region (-160 to -99) was identified as the major contributor to basal expression and another region (-99 to -37) was shown to be required for induction by fungal elicitor. Here, the *in vitro* "binding" of nuclear factors to the -572 to -37 region is described. In extracts from tobacco and *C. roseus*, two "binding" activities were detected that could be identified as the previously described nuclear factors GT-1 and 3AF1, based on their mobility and "binding" characteristics. Both factors appeared to interact with multiple regions in the Tdc promoter. Mutagenesis of GT-1 "binding" sites in the Tdc promoter did not affect the basal or elicitor-induced expression levels. However, induction of the Tdc promoter constructs by UV light was significantly lower, thereby demonstrating a functional role for GT-1 in the induction of Tdc expression by UV light.

Descriptors: Aromatic-L-Amino-Acid Decarboxylases--genetics--GE; DNA-Binding Proteins--metabolism--ME; Gene Expression Regulation, Plant --radiation effects--RE; Nuclear Proteins--metabolism--ME; Plant Proteins --metabolism--ME; Plants--genetics--GE; Promoter Regions (Genetics); Ultraviolet Rays; Aromatic-L-Amino-Acid Decarboxylases--metabolism--ME; Base Sequence; "Binding" Sites; Cell Nucleus--metabolism--ME; Cells, Cultured; Madagascar; Molecular Sequence Data; Plants--radiation effects --RE; Plants, Transgenic; TATA Box; Tobacco; "Transcription" Factors

--metabolism--ME; Zinc Fingers  
CAS Registry No.: 0 (DNA-Binding Proteins); 0 (Nuclear Proteins); 0  
(Plant Proteins); 0 (Transcription Factors); 0 (nuclear factor GT-1);  
151472-25-2 (3AF1 protein)  
Enzyme No.: EC 4.1.1.28 (Aromatic-L-Amino-Acid Decarboxylases)  
Record Date Created: 19990730

10/9/9 (Item 2 from file: 155)  
DIALOG(R)File 155: MEDLINE(R)

09926140 99007235 PMID: 9789009  
A cytochrome P450 \*terpenoid\* hydroxylase linked to the suppression of  
insect juvenile hormone synthesis  
Sutherland TD; Unnithan GC; Andersen JF; Evans PH; Murataliev MB; Szabo  
LZ; Mash EA; Bowers WS; Feyereisen R  
Department of Entomology, University of Arizona, Tucson, AZ 85721, USA.  
Proceedings of the National Academy of Sciences of the United States of  
America (UNITED STATES) Oct 27 1998, 95 (22) pi2884-9, ISSN 0027-8424  
Journal Code: PV3  
Contract/Grant No.: DK34549, DK, NIDDK

Languages: ENGLISH  
Document type: Journal Article  
Record type: Completed  
Subfile: INDEX MEDICUS

A cDNA encoding a cytochrome P450 enzyme was isolated from a cDNA library  
of the corpora allata (CA) from reproductively active *Diptera punctata*  
cockroaches. This P450 from the endocrine glands that produce the insect  
juvenile hormone (JH) is most closely related to P450 proteins of family 4  
and was named CYP4C7. The CYP4C7 gene is expressed selectively in the CA;  
its message could not be detected in the fat body, corpora cardiaca, or  
brain, but trace levels of expression were found in the midgut and caeca.  
The levels of CYP4C7 mRNA in the CA, measured by ribonuclease protection  
assays, were linked to the activity cycle of the glands. In adult females,  
CYP4C7 expression increased immediately after the peak of JH synthesis,  
reaching a maximum on day 7, just before oviposition. mRNA levels then  
declined after oviposition and during pregnancy. The CYP4C7 protein was  
produced in *Escherichia coli* as a C-terminal His-tagged recombinant  
protein. In a reconstituted system with insect NADPH cytochrome P450  
reductase, cytochrome b<sub>5</sub>, and NADPH, the purified CYP4C7 metabolized  
(2E,6E)-farnesol to a more polar product that was identified by GC-MS and  
by NMR as (10E)-12-hydroxyfarnesol. CYP4C7 converted JH III to  
12-trans-hydroxy JH III and metabolized other JH-like sesquiterpenoids as  
well. This omega-hydroxylation of sesquiterpenoids appears to be a  
metabolic "pathway" in the corpora allata that may play a role in the  
suppression of JH biosynthesis at the end of the gonotrophic cycle.

Tags: Animal; Female; Support, U.S. Gov't, P.H.S.

Descriptors: \*Cockroaches--metabolism--ME; \*Cytochrome P-450--genetics  
--GE; \*Cytochrome P-450--metabolism--ME; \*Gene Expression Regulation,  
Developmental; \*Hydroxylases--genetics--GE; \*Hydroxylases--metabolism--ME;  
\*Juvenile Hormones--biosynthesis--BI; Amino Acid Sequence; Base Sequence;  
Cloning, Molecular; Cockroaches--genetics--GE; Cockroaches--growth and  
development--GD; Cytochrome P-450--chemistry--CH; DNA Primers; Escherichia  
coli; Gene Expression Regulation, Enzymologic; Hydroxylases--chemistry--CH;  
Molecular Sequence Data; Mutagenesis, Site-Directed; Nuclear Magnetic  
Resonance, Biomolecular; Oviposition; Polymerase Chain Reaction;  
Recombinant Proteins--chemistry--CH; Recombinant Proteins--metabolism--ME;  
Sequence Alignment; Sequence Homology, Amino Acid; \*Transcription; Genetic  
Molecular Sequence Databank No.: GENBANK/AF071072; GENBANK/AF071073;  
GENBANK/AF071074; GENBANK/AF071075

CAS Registry No.: 0 (DNA Primers); 0 (Juvenile Hormones); 0  
(Recombinant Proteins); 9035-51-2 (Cytochrome P-450)  
Enzyme No.: EC 1.14. (Hydroxylases); EC 1.14.- (cytochrome P-450  
CYP4C7)

Record Date Created: 19981124

?ds

Set	Items	Description
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S3	561	S2 AND PROMOTER?

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S8 161 S7 AND PATHWAY  
S9 13 S8 AND (TRANSCRIPTION OR REGULATORY OR BINDING)  
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\$24.75 15 Type(s) in Format 3  
\$11.55 7 Type(s) in Format 9  
\$36.30 22 Types  
\$41.39 Estimated cost File5  
\$2.26 0.706 DialUnits File155  
\$0.40 2 Type(s) in Format 3  
\$0.40 2 Type(s) in Format 9  
\$0.80 4 Types  
\$3.06 Estimated cost File155  
OneSearch, 3 files, 1.781 DialUnits File08  
\$0.40 TYMNET  
\$47.23 Estimated cost this search  
\$47.48 Estimated total session cost 1.853 DialUnits

### Status: Signed Off. (9 minutes)